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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/018,473	12/19/2001	Thomas Heitz	50089	8131

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EXAMINER	
OH, TAYLOR V	
ART UNIT	**PAPER NUMBER**
1625	

DATE MAILED: 10/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/018,473	HEITZ ET AL..PN.	
	Examiner	Art Unit	
	Taylor Victor Oh	1625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 August 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Final Rejection

The Status of Claims

Claims 1-11 are pending.

Claims 1-11 have been rejected.

Claim Rejections-35 USC 112

1. Applicants' argument filed 8/6/2003 have been fully considered but they are not persuasive.

The rejection of claim 1 has been withdrawn due to applicants' convincing argument in the amendment. However, there is still a new issue regarding claim 7 to be resolved.

Claim 7 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a catalyst , such as, tetrabutyl orthotitanate ,triisopropyl titanate, tin dioctoate, does not reasonably provide enablement for all the catalysts known in the field of chemistry. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to include all the catalysts unrelated to the invention commensurate in scope with these claims. Furthermore, the instant specification fails to provide information that would allow the skilled artisan to practice the instant invention without **undue experimentation.** Attention is directed to *In re Wands*, 8 USPQ2d 1400 (CAFC 1988) at 1404 where the court set forth the eight factors to consider when assessing if a disclosure would have

required undue experimentation, citing *Ex Parte Forman*, 230 USPQ 546 (BdApls 1986) at 547 the court recited eight factors:

1) the quantity of experimentation necessary,

2) the amount of direction or guidance provided,

3) the presence or absence of working examples,

4) the nature of the invention,

5) the state of the prior art,

6) the relative skill of those in the art,

7) the predictability of the art, and

8) the breath of the claims.

In the instant case, the claim encompasses various catalysts. However, applicants' specification provide only one particular exemplified catalyst compound, such as tetrabutyl orthotitanate in the page 8 of the specification. This particular catalyst can not be the representative of all the possible catalysts known in the art of organic chemistry. Furthermore, the catalyst compositions represent an unpredictable aspect in the art of organic chemistry . See Exparte Sizto, 9 USPQ2d 2081 (Bd. Of App. And Inter. March 1988). Thus, the specification herein have failed to provide sufficient working examples to support the use of various catalysts. Therefore, an appropriate correction is required.

Claim Rejections-35 USC 102

2. *The rejection of Claims 1-5 and 7-11 under 35 U.S.C. 102(b) as being anticipated clearly by Braune (U.S. 5,854,377) has been changed to the rejection of Claims 1-5 and 7-11 under 35 U.S.C. 103(a) as being unpatentable over Braune (U.S. 5,854,377).*

The rejection of Claims 1-5 and 7-11 under 35 U.S.C. 102(b) as being anticipated clearly by Braune (U.S. 5,854,377) has been changed to the rejection of Claims 1-5 and 7-11 under 35 U.S.C. 103(a) as being unpatentable over Braune (U.S. 5,854,377).

Claim Rejections-35 USC 103

The rejection of Claim 6 under 35 U.S.C. 103(a) as being unpatentable over Braune (U.S. 5,854,377).

The rejection of Claim 6 under 35 U.S.C. 103(a) as being unpatentable over Braune (U.S. 5,854,377) has been maintained with the reasons of the record in paper no. 8.

Claim Rejections - 35 USC § 103

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-5 and 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Braune (U.S. 5,854,377).

Braune discloses a preparation of polybutylene terephthalate in the following example:

a. feeding 1.84 mol of terephthalic acid and 3.68 mol of 1,4-butanediol, 30 ppm of tetrabutyl orthotitanate into the first zone at a temperature of 245^0 C and a pressure of 0.85 bar;

b. moving the product into the second zone in which the reaction temperature is 260^0 C and the pressure, 0.40 bar;

c. transferring the product into the third zone in which the reaction temperature is 270^0 C and the pressure, 0.20 bar. (see col. 5 ,lines 25-48).

Furthermore, the precondensate at a temperature of 280^0 C was transferred into a postcondensation reactor (step C) (see col. 5 ,lines 57-58). In addition, the polycondensate obtained has an acid number of from 25 to 30 meq /kg of PBT(see col. 6 ,lines 32-40). Also, with a conversion of > 95 %, the esterification product was introduced to the base of a tube bundle reactor (see col. 5 ,lines 40-41).

However, the instant invention differs from the reference in that the esterifcation stage is carried out in a reactor cascade where the temperature does not increase along the reactor cascade in stage (a); and the conversion at the stage a) is > 97 %.

Concerning no change in the temperature of the reactor cascade, Braune does disclose that the temperature of a subsequent zone should be $1\text{-}40^0$ C. higher than that of the preceding zone (see col. 1 ,lines 64-67); this passage implies that the 1 degree temperature difference is allowable for the esterification stage (a) along the

reactor cascade. In other words, there is little difference as to conducting the actual reaction process regardless of the slight reaction temperature variations. Therefore, there is no patentable weight with this limitation over the prior art in the absence of an unexpected result.

Even so, the reference does indicate that, with a conversion of > 95 %, the esterification product was introduced to the base of a tube bundle reactor (see col. 5 ,lines 40-41); the conversion range in the prior art reference does include the claimed range. Therefore, it would have been obvious to the skilled artisan in the art to have assumed that the prior art conversion range did contain the claimed range.

Braune does teach the preparation of polybutylene terephthalate by reacting terephthalic acid and 1,4-butanediol in the presence of tetrabutyl orthotitanate with the conversion of > 95 % of terephthalic acid before the esterification product was introduced to the base of a tube bundle reactor. Therefore, it would have been obvious to the skilled artisan in the art to have assumed that the prior art conversion range did contain the claimed range.

In Response to the Argument

3. The applicants argue the following issues:

1. unlike the prior art, the esterifcation stage is carried out in a reactor cascade where the temperature does not increase along the reactor cascade in stage (a) , thereby withdrawing the rejection under 35 USC 102 (b).

2. the teaching of the Braune prior art not only fails to suggest that the temperature in the esterification reactor cascade does not increase, it also contains nothing which implies the adaptation of the temperature to the esterification reactor ,which will have an impact on the amount of unwanted by- product.

The applicants' argument have been noted, but these arguments are not persuasive.

First, with regard to the first argument, the Examiner has noted applicants' argument. However, the rejection under 35 USC 102 (b) has been withdrawn. Therefore, applicants' argument is irrelevant.

Second, regarding the second argument, the Examiner has noted applicants' argument. However, Braune does disclose that the temperature of a subsequent zone should be 1-40^0 C. higher than that of the preceding zone (see col. 1 ,lines 64-67); this passage implies that the 1 degree temperature difference is allowable for the esterification stage (a) along the reactor cascade. In other words, there is little difference as to conducting the actual reaction process regardless of the slight reaction temperature variations. Therefore, there is no patentable weight with this limitation over

the prior art in the absence of an unexpected result. Furthermore, regarding the adapting temperature to the esterification reactor will have an impact on the amount of unwanted by- product. The claims are unrelated to reducing the amount of unwanted by- product. Therefore, in this respect, applicants' argument is irrelevant.

Therefore, the rejection is maintained.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to T. Victor Oh whose telephone number is (703) 305-0809. The examiner can normally be reached on Monday through Friday from 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alan Rotman , can be reached on (703) 308-4698. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-4556.

T. Victor Oh

10/19/03

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